



National Weather Service Aberdeen, South Dakota



January 2011

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Goodbye 2010

The weather for 2010 across central and northeast South Dakota as well as west central Minnesota was much wetter than normal, especially across northeast South Dakota and west central Minnesota. The yearly average temperatures for 2010 were generally below normal and within a degree of normal. Watertown was the only location with a yearly average temperature above normal and was due mainly to the warm minimum average temperatures. Interestingly enough, both Aberdeen and Kennebec finished the year with an average temperature right at normal. Bitter cold air in early January brought some record lows for the region with lows in the mid 20s to the mid 30s below zero. The heat was finally turned up in central and north central South Dakota in the Summer of 2010 where all locations warmed up to well over 100 degrees. After two consecutive summers of not reaching 100 degrees, Pierre reached and surpassed 100 degrees several times this past summer.

The yearly precipitation was above normal for most locations across central and northeast South Dakota as well as west central Minnesota. The snowmelt in the spring and the summer thunderstorms led to flooding across parts of central and much of northeast South Dakota and west central Minnesota. For 2010, most locations were from 3 to 7 inches above normal. North central South Dakota actually went into drought for much of the summer of 2010. Mobridge's yearly precipitation was at 16 inches or sixty-five hundredths below normal. Wheaton and Watertown received almost 29 inches of precipitation for the year.

The biggest weather events of the year were the devastating Bowdle EF4 tornado in late May, the United States record 8-inch diameter and nearly 1 pound 14 ounce hailstone that fell in Vivian, South Dakota on July 23rd. The other big event for 2010 was the record surface low pressure area that moved across Minnesota in late October which brought very high winds gusting to over 70 mph to the region for two days causing damage across parts of the region.

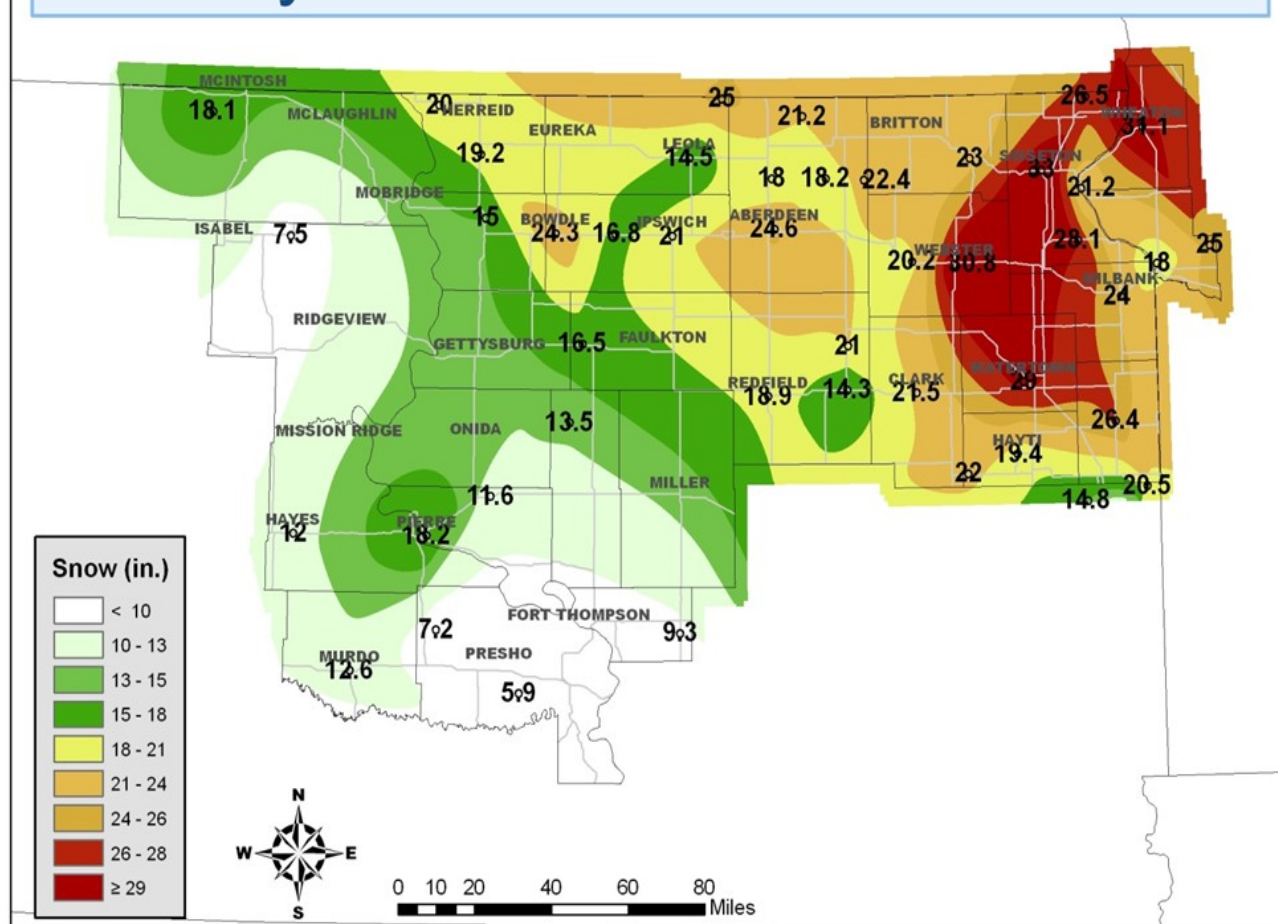


A Look Back at 2010

CLIMATE SUMMARY 2010

Temperature Data	Aberdeen	Sisseton	Wheaton	Watertown
Warmest Temperature/Date	96 / 7/17, 8/22	96 / July 17th	98 / July 18th	94 / Aug 8th
Coldest Temperature/Date	-31 / Jan 9th	-35 / Jan 2nd	-30 / Jan 2nd	-31 / Jan 2 nd
Average Yearly High/Departure from Normal	54.4 / -0.7	53.5 / -0.9	52.5 / -2.5	52.9 / 0.0
Average Yearly Low/Departure from Normal	33.1 / +0.7	33.5 / +0.2	33.7 / +1.0	33.4 / +2.3
Yearly Average/Departure from Normal	43.8 / 0.0	43.5 / -0.4	43.1 / -0.8	43.2 / +1.2
Precipitation/Wind Data				
Yearly Precipitation / Departure from Normal	27.22 / +7.00	26.13 / +4.05	28.93 / +6.39	28.82 / +6.88
Highest Wind Gust MPH / Date	62 / Oct 26th	64 / Oct 26th	N/A	68 / Jun 23rd
Temperature Data	Pierre	Kennebec	Mobridge	Timber Lake
Warmest Temperature/Date	108 / Aug 27th	105/ Jul 17th	106 /Aug 27th	104/Aug 22nd
Coldest Temperature/Date	-23 / Jan 8th	-24 / Jan 8th	-30 / Jan 8th	-24 / Jan 8th
Average Yearly High/Departure from Normal	56.9 / -2.5	59.5 / -1.7	54.5 / -2.2	54.6 / -1.6
Average Yearly Low/Departure from Normal	35.1 / -0.4	35.4 / +1.8	33.1 / +0.1	32.9 / -0.4
Yearly Average/Departure from Normal	46.0 / -1.5	47.4 / 0.0	43.8 / -1.3	43.8 / -1.0
Precipitation/Wind Data				
Yearly Precipitation / Departure from Normal	23.15 / +3.27	24.41 / +5.70	16.00 / -0.65	19.71 / +1.11
Highest Wind Gust MPH / Date	72 / Oct 8th	N/A	64 / Oct 26 th	N/A

Monthly Snowfall - December 2010



Back to Back Blizzards of December, 2010

The blizzards that closed out 2010 set new benchmarks when they blew through on the last two days of December. In the wake of strong winds and widespread heavy snow, regional residents and travelers remained snowbound for several days afterwards. It also helped push regional snowfall totals for the month of December close to, and in several cases, to surpass regional records.

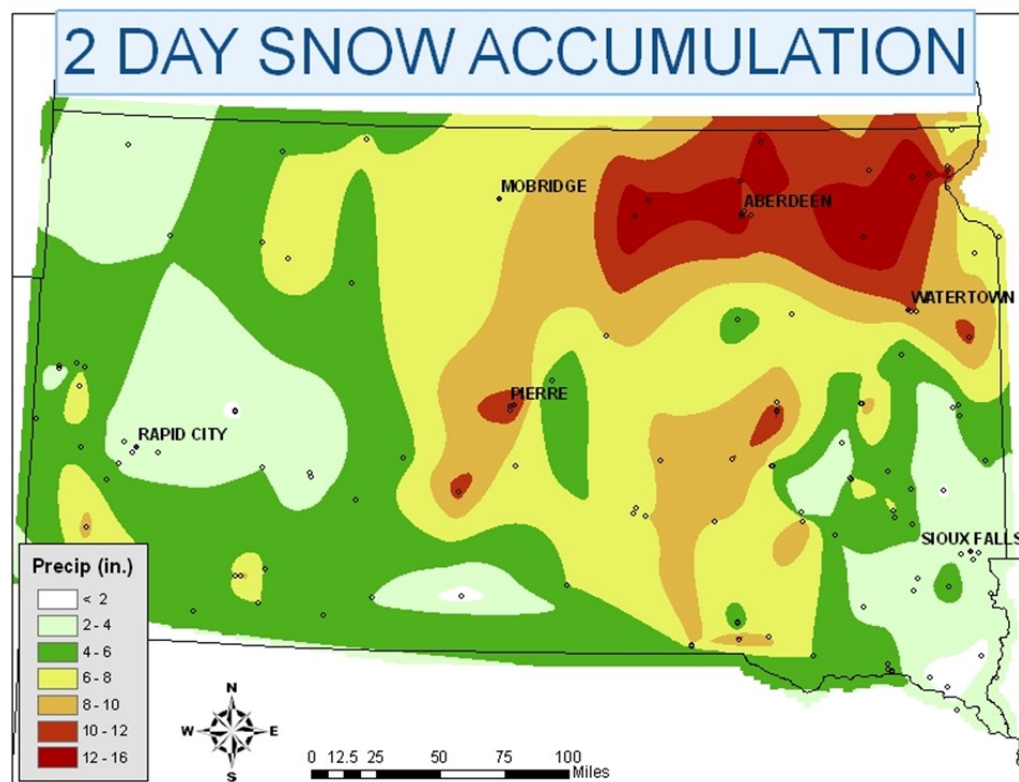
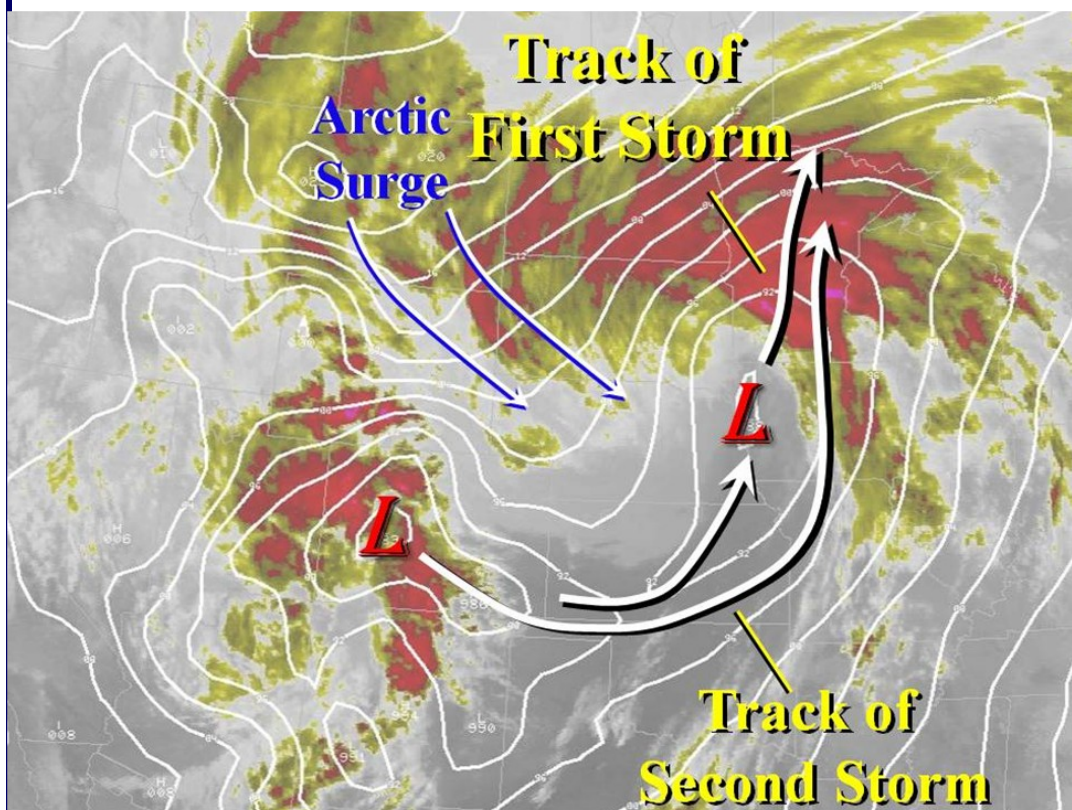
RECORD DECEMBER SNOWFALL

SISSETON.....33.0 IN. (BEAT OLD RECORD OF 29.1 IN 2009)
SUMMIT 1W.....31.3 IN. (BEAT OLD RECORD OF 26.0 IN 2005)
WHEATON.....31.1 IN. (BEAT OLD RECORD OF 25.8 IN 2008)
WEBSTER.....30.8 IN. (BEAT OLD RECORD OF 21.9 IN 2009)
WATERTOWN 1W.....29.0 IN. (BEAT OLD RECORD OF 25.0 IN 2009)
WILMOT.....28.1 IN. (BEAT OLD RECORD OF 23.0 IN 2009)
BRITTON.....28.0 IN. (BEAT OLD RECORD OF 25.1 IN 2009)
ABERDEEN.....24.6 IN. (BEAT OLD RECORD OF 24.1 IN 1927)
CLARK.....21.5 IN. (BEAT OLD RECORD OF 17.7 IN 2008)
BRISTOL 7S.....20.2 IN. (BEAT OLD RECORD OF 16.8 IN 2009)

The set up for this event included two low pressure systems that traveled nearly identical paths. The first system moved across the region with relatively mild air already in place, so a wintry mix occurred along and south of the storm track early Thursday, December 30th. The system, however, began to interact with Arctic high pressure across the northern plains, drawing down extremely cold air. Temperatures fell throughout the day for most locations, and any mixed precipitation quickly transitioned to heavy snow. This made for hazardous travel conditions as formerly wet road surfaces iced up, while blowing snow resulted white out conditions. There was little respite from the weather, even as the first system departed, with strong north winds blowing throughout the night. The second system pushed up from the south late the night of December 30th, accompanied by additional heavy snow and continued gusty north winds. These strong winds persisted well into the day Saturday, January 1st, making for a difficult post storm clean up.



Back to Back Blizzards of December, 2010 (cont.)



Snow accumulations
December 30th and
31st.

Extreme Cold Warning Experimental Project

Beginning January 10, 2011 and continuing through April 15, 2011, WFO Aberdeen will be among select NWS Weather Forecast Offices taking part in the issuance of an Extreme Cold Warning product on an experimental basis. The other offices involved in the experiment include Sioux Falls, Rapid City, Bismarck, Grand Forks, Duluth and Minneapolis.

On occasion temperatures may fall to well below zero readings with no wind occurring. Currently the only way to headline very cold temperatures is with the use of Wind Chill Advisory or Warning products. The experimental Extreme Cold warning product will be issued in the rare situations where air temperatures fall to dangerous levels as identified by wind chill criteria but there is little to no wind occurring.

WFO Aberdeen, along with the other offices in South Dakota, will be using our Wind Chill Warning criteria temperature of -35F coupled with wind speeds **less** than 5 mph. Because of the extreme nature of the temperature, it's anticipated that this product won't be issued very often. In fact, since 1995; Aberdeen would have met criteria 5 times, Sisseton met the criteria 1 time, Pierre, Mobridge and Watertown have never met the criteria.

There may be some instances where an Extreme Cold Warning is issued when air temperatures are between 30 below and 34 below. Time of year, length of occurrence and impact will be some of the considerations in these cases. In all of these cases, the above criteria would need to be met over a widespread area and expected to persist for several hours. In addition, we will continue to issue wind chill warnings and advisories as needed.

Additional information about this product and other experimental products can be found at:

<http://products.weather.gov/viewliste.php>

Comments should be submitted at the following web address:

<http://www.weather.gov/survey/nws-survey.php?code=ecw>



Cold Advisory for Newborn Livestock (CANL)

WFO Aberdeen, in conjunction with Weather Service offices in Billings, Great Falls and Glasgow Montana, and Bismarck North Dakota, will be taking part in an experimental forecast named "Cold Advisory for Newborn Livestock" or **CANL**, for short.

The advisory system was created by researchers working with ranchers to determine critical weather elements and lead time needed to take action to protect livestock. The CANL system was first used by the Glasgow, MT. office, and aided in development by researchers at the University of Miami.

In South Dakota, the cattle industry has a 3.72 billion dollar impact on the state's economy, and accounts for more than 6% of the state's economic output.

The CANL index is designed to indicate weather conditions dangerous to newborn livestock, especially calves. The criteria for the index were derived from interviews with ranchers and from scientific research on the topic. Based on this research, the following elements are dangerous at some level to exposed newborns:

Windchill

Rain or Wet Snow

High Humidity (because it makes it more difficult for newborns to dry-off)

Combinations of these elements (such as windchill and rain) are particularly dangerous

If the following conditions are met within a 6-hour period, the associated index and advisory will be:

None: Wind Chill above 41 degrees

Slight: Wind Chill below 41 degrees for more than 2 hours.

Mild: Wind Chill below 32 degrees for more than 2 hours.

Moderate: Wind Chill below 0 degrees for more than 2 hours.

or Wind Chill below 32 degrees and more than .02 inches of precip.

Severe: Wind Chill below -9 degrees for more than 2 hours

or Wind Chill below 32 degrees and more than .05 inches of precip.

Extreme: Wind Chill below -18 degrees for more than 2 hours

or Wind Chill below 32 degrees for 2 hours and more than 0.1 inches of precip.



The forecast graphics for CANL can be found at the following web address:

<http://www.crh.noaa.gov/abr/canl/forecasts.php>

Comments should be submitted at the following web address:

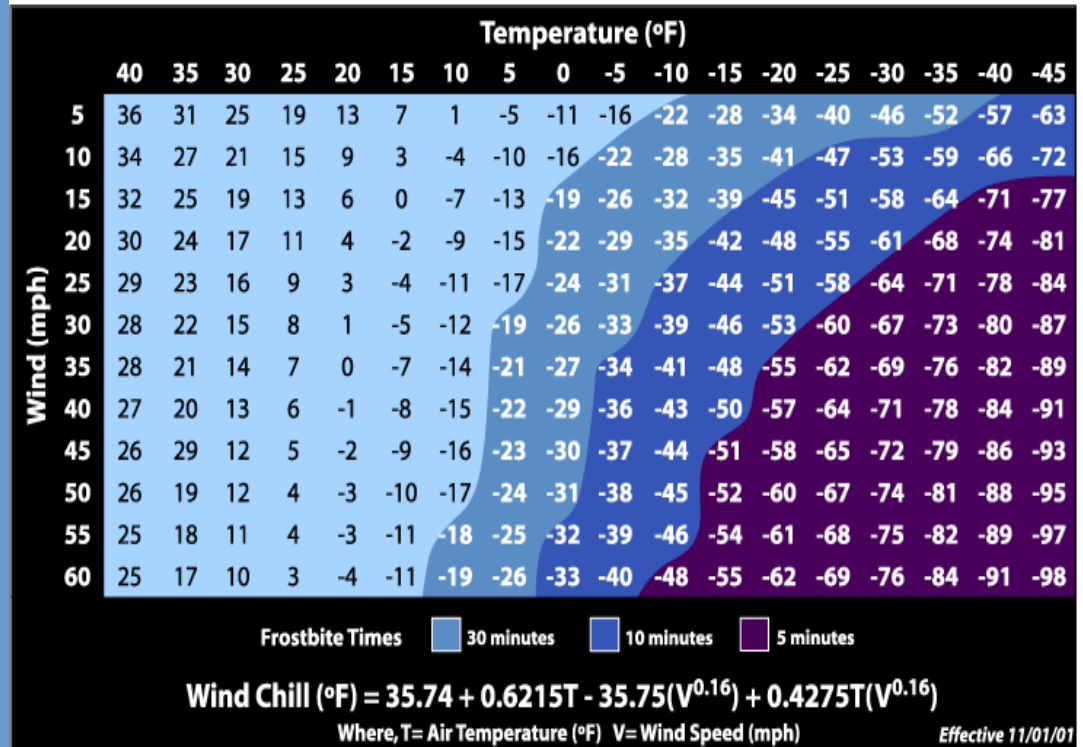
<http://www.weather.gov/survey/nws-survey.php?code=GGW-CANL>

New

New



Wind Chill Chart



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OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, \$300

www.weather.gov/aberndeen

January brings the
snow, makes our feet
and fingers glow.
~ Sara Coleridge